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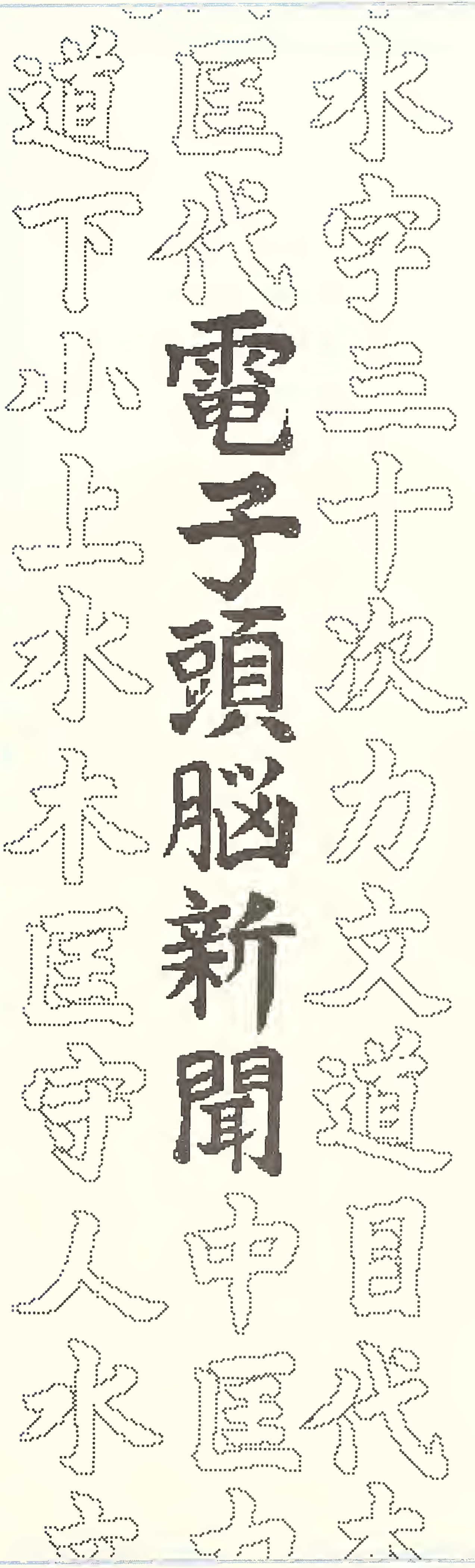
UTCS

ComputerNews



What's the meaning of this?

See article on page 4

ISSN 0315-4661 April 1988 No. 246

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Acknowledgement: Many thanks to Mark Vanderkam who assisted in the editing of this issue.

Cover artwork was created by Nikki Yokokura

Publisher
University of Toronto Computing Services
Toronto, Ontario
Canada M5S 1A1

Editor: Martha Parrott

Publications Assistant: Elizabeth Weitmann

Publication Date: *April 1, 1988*

Subscriptions
Subscriptions run for one year, beginning each January. Changes should be entered on the tear-out form at the back of this issue and mailed to *ComputerNews*, 4 Bancroft Avenue, Room 217 (or phone 416-978-4034).

ComputerNews is published 8 times yearly by the University of Toronto Computing Services (UTCS). Enquiries should be directed to:

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ComputerNews
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Toronto, Ontario
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Unless otherwise indicated, network addresses appearing after the author's name pertain to NetNorth/BITNET/EARN.

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This newsletter was entirely produced on a Macintosh using PageMaker and other related Macintosh software.

Laptop Computers: Serious Travelling Machines

Mark Vanderkam
PUBSCOOP at UTORONTO

Most laptop computers are *heavy* machines. That is, they are not toys but serious, fully capable computers. And they are popular. Sources say that as many as 10% of PCs sold are portables. People who need to work while travelling are buying them and are finding that the market offers various models, prices, and sizes. This article is a look at some of these classes and models of laptops. It is not meant to recommend any particular model nor to act as a comprehensive review. The Zenith laptops are examined the most closely only because UTCS has two on hand. We did no actual head-to-head tests, and some of the information is gleaned from manufacturers' sales publications and from computer journals.

The Luggables

Some laptops are actually too heavy to use on one's lap and are thus termed "luggables." They are not battery-powered, meaning that they are not really meant for fieldwork, but rather for setting up in a hotel room or wherever you can find an AC electrical outlet. The weight of these computers is not really a problem, as sturdy carrying-cases with wide nylon shoulder straps are available. The Compaq Portable III is the best example of this class. Weighing in at 20 pounds and able to fit under an airplane seat, it features an 80286 processor, 12 MHz clock speed, and a 20 or 40 megabyte (MB) hard disk. It is a better overall performer than full-size 8 MHz IBM PC ATs. It is also one of the most durable portables on the market, built to withstand considerable stress. The Portable III does the most of virtually any portable computer today, though it also weighs more than most. It is furthermore one of the most expensive portables (the retail price is $5900 with 20MB hard disk).

This type of machine is at the outer edge of the laptop market. While manufacturers of lighter-weight laptops have unanimously moved to 3.5-inch disks, the Compaq is more in the PC mainstream, still using the 5.25-inch floppies (of course, now that IBM's PS/2 machines use 3.5-inch disks, the PC mainstream will likely shift). Other features on the Portable III, like the expansion module, which accommodates two full-size PC AT expansion boards, indicate Compaq's commitment to provide an operational PC in a down-sized form.

The Notetakers

Other laptops are not fully operational PCs at all but are meant for electronic notetaking. Tandy is big in this area, offering battery-powered compacts for creating ASCII files on the road. These files can be transferred to PCs by modem. The non-DOS-compatible Tandy 102 retails for $799 (at Radio Shack) and includes 72 kilobytes (KB) ROM, and 24KB RAM, expandable to 72KB.

Laptop DOS

The most popular laptops are the 10 to 15 pound, MS-DOS, battery-powered devices that open like clamshells to reveal a screen and keyboard. In this class are some excellent little machines that can fully serve the PC user on the road or even at home-base. Of course most people find the down-sized keyboards and somewhat hard-to-read screens to be too inconvenient for use as a full-time workstation. Still, if you need a computer at the library or on trips, you will be pleased with many in this class.

For example, one of the lighter laptops is the Toshiba T1100 Plus. At 10 pounds (13 pounds with case, charger, and internal modem), its dimensions are a scant 12 by 12 by 2.65 inches. Despite the smallness, this is a highly usable computer. It is not available with hard disk (though several of the higher Toshiba laptops are) but does come with two 3.5-inch disk drives, good input/output (I/O) capabilities, parallel and serial ports, an additional monitor port, room for an internal modem, and links for external 5.25-inch floppy disk drives and for a five-slot expansion box. It runs at 4.77 or 7.16 MHz with an 80C86 CMOS processor. The Plus' major weakness is its screen. It is a rather small, nonilluminated (reflective) liquid crystal display (LCD) that is difficult to read under poor lighting. Its market price is $2749. High-end Toshibas are AT-compatible computers with excellent gas-plasma screens. The T3100 is an AT with a very sleek appearance and a sharp, bright orange screen. With 20MB hard disk, it retails for $5495. The outstanding 386-based T5100, with standard 40MB hard disk and 2MB RAM, weighs 15 pounds and sells for $7800.

A laptop with a superior screen is the Zenith Z-183, a market leader. Its glowing-blue backlit LCD screen is so large, an editor with *PC MAGAZINE* described it as "a flapping barn door." This display, with a standard-monitor aspect ratio (a rare feature in LCDs), is very clear and bright. Thanks to the excellent screen, industry journalists contend that the Z-183 is the only *battery-powered* laptop that could possibly replace a desktop PC.

It comes with a 10 or 20MB hard disk, 640KB RAM (expandable to 1.64MB), a 3.5-inch disk drive, MS-DOS 3.2, an 80C88 processor running at 4.77 or 8 MHz, and a socket for an 8087 math coprocessor. It also includes an interface for a 5.25-inch floppy disk drive, various I/O ports, and ports for attaching a monochrome display and an AT-style 101-key keyboard.

The Z-183 is tough, wrapped in a thick, protective plastic shell, built to take knocks during travel. An interesting feature is the "parking" action of the hard disk. Hard disks are susceptible to disasters known as "head crashes." These occur when dust or jostling physically damages the disk, usually ruining the data on it. For a portable to have a hard disk, manufacturers devised the parking feature to protect the disk from unexpected movement. When not in use for a few seconds, the disk moves into a parking mode, which immobilizes and protects it. On the Zenith, this activity is quite noisy — the machine emits somewhat unsettling screeching, whirring, and grinding sounds.

UTCS owns two Z-183s, and many who have used them are satisfied that they are trustworthy computers (see box). Some industry professionals, though, complain that at almost 16 pounds, this laptop should really be termed a "lap-crusher" or a luggable.

It is a pricey device — the U of T Computer Shop sells them for about $3000 with 10MB hard disk and $3300 with 20MB (researchers save 4%). If you can tolerate the cramped keyboard (it has 78 keys, instead of the AT-standard 101), this is a good computer for travelling PC-users. If you would like to see more of the Z-183, call 978-5601 to make an appointment at the UTCS Micro Lab for a demonstration and trial run.

Notes from a Zenith-user

Dr. John Holladay, an archeologist in the Department of Near Eastern Studies, owns and regularly uses a Zenith Z-181 battery-powered laptop computer. He considers the Z-181 to be a good tool, and even plans to take it to Israel this summer for initial field processing of data from a geophysical survey. Using it while travelling is not a problem, he claims, as a person can always find a printer on which to print files, and with a modem and the Z.COM transfer facility, one can easily hook into other computers.

The Z-181 has twin 3.5-inch disk drives, and, like the Z-183, runs at 8 or 4.77 MHz (switchable). Professor Holladay uses programs such as Nota Bene, dBASE III, REFLEX, and Lotus 1-2-3 and has no problem fitting them on either drive (he can then use his files disk in the other drive).

The battery is rated to last about five hours per charge, and you can still use the computer while recharging the cells. Professor Holladay finds that he can work most of a working day on a single charge — he extends battery life by creating a RAM-disk or V-disk (virtual disk). A V-disk uses space in RAM to hold your program and files; DOS reads from and writes to it like any other disk. This saves power as the mechanical disk drives are not used. (This setup can be dangerous to your data, as the V-disk disappears the moment power fails!)

Some Reservations

Professor Holladay does have a few complaints with the Z-181. He explains that the keyboard is somewhat frustrating — the unfamiliar key-layout uses key combinations to emulate missing keys. The visually pleasing backlit screen has one irritating problem: it emits a low-volume, high-pitched whine. This can become maddening after hours of exposure.

The price could be more attractive. For the price of a Z-181 (the Computer Shop offers it for $2200 — the Research price is about 4% less), you could buy a much more powerful AT-clone desktop computer. Also, options are expensive. The modem, for example, is $500 extra. The Z-181 also lacks a carrying handle, an inconvenient flaw in a briefcase-shaped computer (Zenith fixed this error in the Z-183). Professor Holladay says the Z-181 is moderately heavy (12 pounds), especially when carried with the rather bulky AC/DC adaptor.

Re: Noise on Dial-up Lines

Martha Parrott
PARROTT at UTORONTO

For some time now, modem users have been reporting line-noise problems when trying to access UTCS systems. These problems have been covered in four issues of *ComputerNews* over the past year (see numbers 238, 239, 241, and 242). The following letter from Bell Canada was sent to the University of Toronto in February and might be considered an update on the status of line noise.

> *The following information should be used as background ONLY by the University of Toronto in their efforts to allay concerns by users of their dial data network:*
>
> *The public switched telephone network provides many possibilities for tandem arrangements and facilities on successive calls between specific locations. Obviously, however, it would be impractical to specify and maintain transmission requirements for every conceivable arrangement.*
>
> *Also, though network transmission performance is maintained so that customers receive satisfactory performance on their data calls, it is always possible that a small number of customers may, due to their geographical location, calling patterns, limited network access etc., experience problems when transmitting data.*
>
> *It should however be stated that Bell Canada is constantly striving to improve the integrity of its network and is always dedicated to providing the best possible service on demand. Therefore, if problems occur, Bell will work with customers to eliminate them as quickly as possible.*

Viruses in Commercial Software

Martha Parrott
PARROTT at UTORONTO

An article in the March *ComputerNews* warned microcomputer users about Trojan Horses, programs deliberately written to corrupt or destroy the data of unsuspecting users; "viruses" were discussed in particular. When that article was written, such programs were thought to be confined to software that is passed about among users sharing machines and diskettes. Since then, a virus has been discovered in a piece of commercial software that was developed on a machine that had been exposed to the virus.

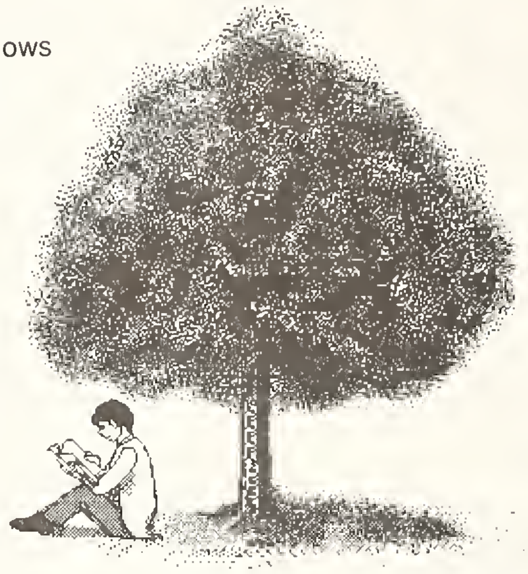
The software involved was Aldus' FreeHand, a design package that runs on the Macintosh SE and the Mac II. At least some media coverage of this development indicated that this particular virus was relatively harmless in the first place and that, in any case, it became inactive after March 2. This is true as far as it goes, but there could in fact be some danger to other Macintoshes exposed to diskettes that have been used on an infected machine.

It is easy to determine whether a copy of FreeHand is infected. If you own a copy and are concerned about its integrity, please call UTCS Advising Services at 978-HELP.

Learning Japanese — An Innovative Computer Use

Mark Vanderkam
PUBSCOOP at UTORONTO

The cover art on this month's *ComputerNews* shows the Chinese characters for a word familiar to our readers. They were created on a Macintosh computer. Nikki Yokokura prepared these characters as an example of some of the fascinating work she is doing with computers and language.



The Kanji character for "to rest, to take a break" consists of two components.

Its radical on the left symbolizes "a man".

And its compound on the right symbolizes "a tree".

Hence, the entire Kanji means "a man resting under a tree" as this picture portrays.

Figure 1.

With the help of the Apple Research Partnership Program (ARPP), the Department of East Asian Studies is developing an application that promises to be a groundbreaking method for helping people to learn the difficult Japanese language. Learning Japanese as a second language is usually a seven to ten year process of repetition and memorization. Mastering the 1500 *Chinese* characters of the Japanese language is one of the most difficult aspects. This language uses Chinese characters imported many centuries ago, when Japan had no written language. Since this happened during China's Kahn dynasty, the Japanese call these characters *Kanji.* These are the characters that Nikki represents by computer.

Using Apple's HyperCard program and ARPP's Mac II computer, she prepared a prototype Kanji character and an illustration (*Figures 1* and *2*). Unfortunately, the printed page can in no way capture the actual impact of this presentation. When you sit down at the computer, you are presented with a screen depicting the Kanji character. Around the Kanji are a number of screen buttons that can be activated with the mouse. One button begins an animated depiction of the act of drawing the character. That is, the Kanji is painted out before you, showing the proper direction and emphasis of each stroke.

Another button activates a voice recording of the character. Though the sound is digitized (it is stored on the disk and not on an external audio tape), it is in no way an unnatural "computer voice." The sounds are recorded by native Japanese-speaking people, and the computer provides a very realistic rendition. A third screen button starts an animated explanation or interpretation of the Kanji. In this presentation, our man under the tree (*Figure 1*) is seen flipping through the book. When he does this, the words explaining the Kanji drift across the screen while classical music plays in the background. Then the tree dissolves and becomes a Kanji. Finally, the man stands up, dissolves, and then reforms as a second Kanji beside the first (*Figure 2*).

In total, up to 15 aspects of the Kanji character will be represented on the screen, giving serious students an opportunity to probe the meaning and history of characters and the interrelationships between characters.

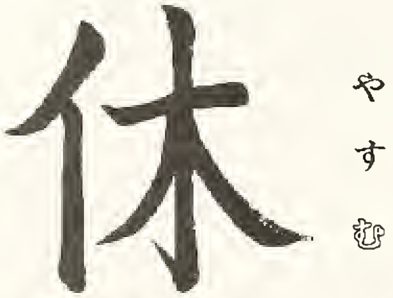


Figure 2.

While the application shows a very high level of sophistication for a language aid, Nikki reports that the Macintosh is especially well suited to this form of use. Using several easy-to-use Apple programs, the presentation was a lot simpler to create than most computer users would expect. In fact, using MacCalligraphy, she was able to create our cover art in less than 45 minutes.

Nikki's prototype impressed and gave some new ideas to Professor Nakajima of the East Asian Studies Department. East Asian Studies, through an Apple Education Foundation grant, recently set up the Apple Innovation Centre for East Asian Languages. Dr.

Nakajima is presently involved in creating a Japanese, Chinese, and Korean bulletin board system. She is also developing applications for teaching language by computer. Seeing Nikki's prototype, she agreed to put the ideas to work for the Centre. They have initiated a nine-month project, commencing April 1, 1988, that will see the basic 300 Kanji characters prepared for presentation on the Macintosh. This method is so much more enjoyable and informative than the old rote process that they believe it will greatly help in the learning and teaching of Japanese.

If you would like to see and learn about the Kanji presentation, call the ARPP office at 978-7828.

Oh yes, and what do the Kanji on our cover mean? Why *ComputerNews*, of course!

The Exodus from MVS: Part II

Bill Fehlner
FEHLNER at UTORONTO

It is now over three months since UTCS announced that the MVS service would no longer be available after June 30, 1988. This affects users of WYLBUR, TSO, APL, and GPJS Batch. The last includes remote job entry from a number of other systems, including, among others, CMS (UTORONTO), the Department of Statistics SUN network, the Department of Zoology UNIX system, and the Medical Sciences VAX. At this time, less than 12% of the CAN holders with active accounts on WYLBUR, TSO, or GPJS have contacted us for assistance in transferring their data and/or programs to another environment.

We strongly encourage users with questions regarding the transfer of data to tape or CMS to contact one of the people mentioned in the box on this page.

Written Documentation

For those who have decided to move to a CMS environment, the following documentation provides a basic guide to using CMS. The *CMS Primer*, the UTCS Guide to VM/CMS, and online Help files provide a good map for using CMS. Other documents described below are required only if you are using a particular package or facility. Detailed instructions for printing UTCS Guides appear in "Documents at UTCS" at the back of *ComputerNews*. UTCS Guides may also be purchased at the UTCS Information Centre.

- *IBM VM/System Product: CMS Primer, Release 4* is available for $19.25 from Dale Wright at the UTCS Information Centre. The *Primer* is intended to teach new users how to do their work using

MVS Warning!

MVS will no longer
be available from UTCS
after

JUNE 30, 1988

The following services will be affected

I.P. Sharp APL
Batch (including CLASS E)
TSO
WYLBUR

If you are currently using any of these services please contact the UTCS staff listed below for assistance in conversion to our VM/CMS service.

Statistical & Numerical Applications
Bill Fehlner **978-6509**

Text & Imaging Applications
John Bradley **978-3995**

Commercial & Affiliated Customers
Ihor Prociuk **978-6875**

CMS. Interspersed exercises allow the *Primer* to be used as a self-guided tutorial. The first three chapters on Getting Started, Editing Files, and Managing Your Files are absolutely essential. The next three chapters on Printing Files, Communicating With Other People, and Asking Questions introduce several other important facilities within CMS.

- The UTCS Guide to VM/CMS may be printed from either CMS or MVS (request CMSGD). Used in conjunction with the *CMS Primer,* this Guide provides the basic information necessary to access and use CMS at UTCS, and points to more detailed documentation as provided by the suppliers of various software packages available under CMS. The sections on connecting through PACX or NTS, special UTCS Helps, accessing products on CMS, and printing from CMS are important extensions of material in the *Primer.*

- The UTCS Guide to Tapes on VM/CMS may also be printed from either CMS or MVS (ask for CMSTAPE). This Guide provides the basic information necessary to mount and use tapes on CMS in a number of standard situations. There is sufficient information to use tapes for backup of disk files, to read raw data from tapes into SAS or FORTRAN programs, and to store large SAS libraries.

- *SAS Companion for the CMS Operating System, 1986 Edition* is available from Dale Wright in the UTCS Information Centre for $9.25. This publication from SAS Institute describes how SAS behaves under CMS and describes the CMS and CP commands that must be used to take full advantage of the SAS system. How to store permanent SAS data sets on both disk and tape, how to store user-created FORMAT libraries, special features of the display manager under CMS, noninteractive execution of SAS programs, and SAS system options specific to CMS are some of the topics covered. Storing permanent SAS data sets on disk may be the only topic many users will need to run their jobs successfully.

- *IBM VM/SP Application Development Guide, Release 3* is available from Dale Wright in the UTCS Information Centre for $27.65. This guide provides an introduction to developing and using FORTRAN programs within CMS. Chapters 2, 3, 4, and 5 are particularly useful. They cover, respectively, the basic use of the compiler, useful features of the CMS editor for creating and modifying source programs, more about compiling and running programs, and the use of macro libraries on CMS. Although portions of this guide have no application here, they are easily identified and ignored.

Seminars

UTCS is offering two types of seminars for users moving to CMS from MVS (see box on page 8). Each seminar will be repeated several times if there is sufficient interest. Other types of seminars may be developed if there is a well defined group of users not served by the current formats.

These seminars are intended to help users transfer the skills they currently use on MVS into the CMS environment. Although much of the information provided is also available in the various documents discussed above, the seminars use demonstrations and analogies to build on MVS skills.

- "MVS to CMS for SAS Users" is a two-hour seminar. Presentation methods include demonstration, lecture, and question-and-answer sessions. The seminar will be in two parts:
    - Moving the data you need from MVS to CMS. Data includes raw data, SAS data sets, SAS programs, and collections of JCL. We will demonstrate the tools available to move each of these and discuss choices that enhance efficiency.
    - Using the data in the CMS environment. This includes translating standard JCL statements to equivalent CMS commands, converting some SAS statements, invoking SAS, and storing SAS libraries in the CMS environment.

- “MVS to CMS for FORTRAN Users” is a two-hour seminar. Presentation methods include demonstration, lecture, and question-and-answer sessions. The seminar will be in two parts:
    - Moving the data you need from MVS to CMS. Data includes raw data, FORTRAN-produced binary data, FORTRAN source programs, FORTRAN object code, and collections of JCL. We will demonstrate the tools available to move each of these and discuss choices that enhance efficiency. Note that load libraries can not be moved to CMS.
    - Using the data in the CMS environment. This includes translating standard JCL statements to equivalent CMS commands, converting some FORTRAN statements, and compiling, linking, and running FORTRAN programs in the CMS environment.

Application Software on CMS

Packages currently on CMS are listed at the back of *ComputerNews*. The following list includes all supported application software that will be available on CMS as of June 30, based on current plans. Note that some Support Class C packages on MVS are not on this list.

Package	Support Level	Type of Software
Assembler F	C	IBM Assembler Language
BMDP	A	BMDP Statistical Software Package
Concurrent Euclid	C	Concurrent Euclid compiler
VS FORTRAN	A	FORTRAN-66 and FORTRAN-77 standard and IBM extensions
VS FORTRAN Utilities	B	FORTRAN Utilities for the VS FORTRAN compiler
IMSL	A	International Math Subroutine Library
Kermit	A	Microcomputer-to-CMS communications
LINPACK	C	FORTRAN subroutines for linear systems, etc.
LISREL	A	Linear Structural Relationships (in SPSS^x)
Minitab	B	Statistics Package
NAg	A	Numerical Algorithms FORTRAN Library
NTSYS	C	Numerical Taxonomy Package
VS PASCAL	C	IBM Pascal compiler
PL/I	B	IBM PL/I Optimizing compiler
REXX	A	The “exec” language
SAS	A	Statistical Analysis System
SAS/GRAPH	A	Graphical component of SAS
SCRIBE	C	Text-formatting language
SNOBOL4	C	Version 3.5 of the SNOBOL language
SPSS^x	A	Statistical Software Package with LISREL
TESTFORT	A	Interactive debug tool for VS FORTRAN
Turing	C	Turing compiler
Waterloo C	C	University of Waterloo C compiler
WATFIV	C	University of Waterloo FORTRAN compiler
WATFOR77	A	University of Waterloo WATFOR77 compiler
WSCRIPT	B	Text-formatting language
MICROLASER	A	print microcomputer files on X8700

CMS Seminars for MVS Users

There will be no charge for these seminars, but participants must register with Irene Rosiecki (978-4565); enrollment is limited to 20. All participants must be current users of WYLBUR, TSO, or GPJS Batch or have disk or tape data stored on MVS at this time.

The following dates have been set aside:

Tuesday	19 April	9:00-11:00 a.m.	SAS
Wednesday	20 April	9:00-11:00 a.m.	FORTRAN
Monday	25 April	1:00-3:00 p.m.	SAS
Thursday	28 April	1:00-3:00 p.m.	FORTRAN

Depending on demand, seminars for either SAS or FORTRAN users will be held on the following dates:

Tuesday	3 May	1:00-3:00 p.m.
Wednesday	4 May	1:00-3:00 p.m.
Monday	16 May	1:00-3:00 p.m.
Thursday	19 May	1:00-3:00 p.m.
Tuesday	24 May	10:00-12:00 noon
Friday	27 May	10:00-12:00 noon
Tuesday	14 June	1:00-3:00 p.m.
Thursday	17 June	1:00-3:00 p.m.

Original Macintosh Software is Improved

Dariusz Dabek
DABEK at UTORONTO

Many Macintosh-related announcements were made at the recent MacWorld Expo. While Apple announced its new line of laser printers, the LaserWriter IIs, its spin-off company CLARIS announced new versions of software. Products currently available from CLARIS include improved versions of MacDraw, MacPaint, MacProject, and MacWrite. Major changes include support for AppleShare, Mac II, and colour. The new enhancements include:

MacDraw II
- Available this spring.
- Three to ten times faster than original.
- Includes zooming, multiple layers, increased resolution (up to 2000 dots per inch), and plotter support.

MacPaint 2.0
- Available now.
- Includes tear-off menus similar to those on HyperCard, ability to work on nine documents at once, auto scrolling (when moving out of the screen boundaries).
- Magic eraser clears a level at a time.

MacProject II
- Available now.
- Includes hierarchical subproject consolidation, task relationships, flexible calendars, and support for up to 1500 resources per project.

MacWrite 5.0
- Available now.
- Comes with a 100,000 word spell checker, keyboard shortcuts, and decimal tabs.
- Large-screen monitor support.

UTCS will have copies of these programs in the near future. For more information, please phone 978-HELP.

Inexpensive Academic Software

Geoffery Rockwell
rockwell@gpu.utcs.toronto.edu

The high cost of software is often a problem for people who use microcomputers. For university students and faculty, another problem is the frequent lack of course- or studies-related programs.

An American company has moved to make academic Apple II and Macintosh software more available. With 350 stores serving over 500 colleges and universities, Kinko's Copies recently initiated the **Academic Courseware Exchange**. This Exchange lists educational software from a wide range of developers, producing and marketing the programs and paying royalties to the developers. Twice a year, Kinko's publishes a catalogue of the software they distribute. The software ranges in price from US$8 to US$40 (much of it is available for less than US$20). The software can be ordered from Kinko's using a form we have at the ARPP Office (Apple Research Partnership Program, Room 213, 4 Bancroft Avenue, 978-7828).

A sampling of the software includes:

Authoring Tools
- **Lesson Writer** — for creating tutorials and tests containing answers of varying detail and sophistication.
- **MacLang** — for preparing computer exercises tailored to ESL and foreign language students of French, Spanish, Italian, Portugese, German, Rumanian, Russian, and Greek. The program stores all incorrect answers made by students, allowing instructors to create a stock of error messages that explain why the answer is wrong.

Biology
- **Energetics and Metabolism** — illustrates the reactions of metabolism and the interactions among the several metabolic compartments of a cell using many diagrams of biochemical pathways.
- **Plant Paint** — thirty-six graphics images illustrating concepts in plant biology. Images can be used for test and quiz construction, student study, and overhead preparation.

Chemistry
- **Molecular Editor** — construction kit for building and displaying molecules, crystals, and other structures that can be represented by interconnected points or spheres in three dimensions.
- **MacMendeleev** — sophisticated tool for exploring the properties of the elements and the periodic table, or for maintaining an up-to-date, customized periodic table.

Computer Science
- **ForthTalk™ Kernel** — provides a complete interactive object-based programming environment on the Macintosh computer.
- **The SmallGol Compiler** — compiler displaying animated, dynamic pictures that reveal how a compiler works.

General Purpose
- **Brainchild Grade** — electronic gradebook designed for educators at all ages.
- **Learning Tool** — electronic notebook that helps user to organize course notes, write term papers, and study for exams.
- **Personal ResuméWriter** — professional desktop-publishing application for creating resumés with a minimum of time, effort, and cost.

Business
- **Simulating the Great Depression** — detailed model of U.S. economy from 1929 to 1933, with simulation experiments corresponding to exogenous policy variables.
- **The Commodity Trader** — professional commodity future delivery trading program system with one full year of data files.

The catalogue also covers software related to: Engineering, Science, Geology, Geography, History, Humanities, Law, Math, Music, Nutrition, Philosophy, Physics, Psychology, and Sociology.

Drop in at ARPP and have a look at the catalogue. If you want to preview the software, George Brown College has a copy of the collection and facilities for letting you try the applications. Call Brenda Bennett at 967-1212 (ext. 2389) to make an appointment. ☐

SPSS/PC - What's in it for you?

Joyce Bernstein
JBERNST at UTORONTO

As announced in the last issue of *ComputerNews*, the University of Toronto has acquired a site license for several SPSS/PC modules. These products include the SPSS/PC+ Base system, the Advanced Statistics module, the Tables package for producing tabular reports, the Graphics procedure, and SPSS Data Entry II for simplified data entry and editing. All are designed to run on IBM PC/XT, PC/AT or compatible machines, with a hard disk of at least 10 megabytes (MB). A brief description of the Base, Statistics, and Tables modules follows; check up-coming issues of *ComputerNews* for further information regarding the Graphics procedure and Data Entry II. Note that the graphics procedure is not standalone, but is an interface to Microsoft Chart.

SPSS/PC+ is the micro version of the widely used SPSS^x mainframe package, designed for data description and analysis. Procedures for computing descriptive statistics, frequency distribution tables, histograms, and cross-tabulations are available in the Base product, with numerous options for output display. The relative ease with which these statistics may be produced will be familiar to "old friends" of mainframe SPSS^x. The regrouping and recoding of data values is also easily performed with SPSS/PC+. In addition, a selection of statistical procedures are available including several nonparametric routines as well as two sample T-tests, linear regression, and ANOVA procedures. In many cases, these require only one or two brief specificiations to run.

The capacity to perform a wider range of statistical tests is provided by the add-on SPSS/PC+ Advanced Statistics module. While not as complete as the mainframe version, this product includes several multivariate routines such as discriminant, cluster, and factor analyses. In addition, the MANOVA procedure provides more flexibility in univariate ANOVA as well as performing multivariate ANOVA and repeated measures computations.

For those interested in producing high-quality tabular displays, the Tables module offers a variety of options. While this procedure may require more time initially for mastering the coding technique, it will likely be worthwhile if you have large quantities of tabular data requiring customized output. With this procedure, you have control over the table structure, spacing, line drawing, titling, and footnoting. Features for handling multiple response situations are also included. In addition, the features of SPSS/PC+ may be used in conjunction with those of the Tables module for increased flexibility.

All of the SPSS/PC+ routines and add-on enhancements are used in conjunction with Review, the fullscreen editor included with the Base procedure. Fans of menu-system applications and devoted typists alike will be pleased with Review since it can run in either a menu-driven or full-edit mode. An online tutorial is available for the menu-driven approach. It is a clearly written and well-organized guide to both the menu system and the SPSS language, requiring no previous programming experience to run. An investment of an hour's time with the tutorial should be sufficient to get a new user started in SPSS/PC+.

In contrast to the ease with which the menu system can be mastered, the task of learning to use Review in full editing mode will likely be a frustrating one. The tutorial offers no assistance in this regard; while the Help menus document the necessary function key definitions, you are left to your own devices to apply these keys correctly. For the persistent, a variety of convenient features are available. It is possible, for instance, to insert DOS files anywhere in the editing window, as well as to save selected portions of the editor contents in DOS. Either the entire contents of the editor window or a selected subset of lines can be submitted for programming. The latter option can be handy in testing small portions of larger programs. Like other fullscreen editors, Review permits the copying, moving, and deleting of both single lines and blocks of lines. Those accustomed to other editing products may initially find these actions a bit tedious in Review, due to the assignment of function-key definitions. For example, <F4> can be used for inserting, deleting, or undeleting a specific line. Once <F4> is pressed, you must indicate which of the three above options you want. As further explained in the manual, although not in the online Review menu, you can use key combinations for more specific command specifications; that is, <Shift><F4> inserts a line before the designated line, <Ctrl><F4> deletes the the line, and <Alt><F4> brings back a line previously removed.

For those already using SPSS^x, few syntactic differences exist between the mainframe and PC versions. The biggest difference in the two systems is the requirement of a period, or blank line, as a command terminator in SPSS/PC code. Thus, commands may be submitted and debugged one at a time, as well as in Batch style. While in interactive mode, you may consult any of the menu windows without program interruption. Other discrepancies between the two systems are documented in the SPSS/PC+ manual.

If you would like further information regarding SPSS/PC+, please phone Joyce Bernstein at 978-5128.

Numerical Calculations on IBM Compatible Micros

Andrzej J. Pindor
APINDOR at UTORONTO

Using a microcomputer for numerical calculations is much easier with access to libraries of typical programs written in a higher level language (e.g., FORTRAN, Pascal) or access to specialized packages. Two well known suppliers of mainframe numerical libraries, NAg and IMSL, offer microcomputer versions of their products for different FORTRAN compilers (currently Microsoft and IBM Professional; other compiler versions are in preparation). Below are described two other libraries (Numerical Recipes and Numerical Analyst) and a mathematical and statistical software package called GAUSS. Results of selected comparative timing tests are also reported; however, the products should not be judged solely on the basis of the timing results, but also on the basis of their overall features, discussed below.

Two of the products, Numerical Analyst by MAGUS and GAUSS by APTECH SYSTEM, were kindly lent to us for the evaluation period.

Numerical Recipes

Numerical Recipes is an extensive set of FORTRAN subroutines published in the book *Numerical Recipes — The Art of Scientific Computing* by W.H. Press et al. (Cambridge University Press 1986). You can also purchase a diskette with the FORTRAN source codes. (Alternatively, you can obtain the programs written in Pascal, or in a form suitable for Macintosh computers.) The programs cover a wide variety of fields of numerical analysis: solutions of linear algebraic equations, interpolation and extrapolation, integration, special functions, random number generation, root finding and sets of nonlinear equations, minimization and maximization of functions, eigensystems, Fourier transforms, solutions of ordinary and partial differential equations. There are also routines for statistical description of data, modeling of data, and sorting. Each of the programs is discussed in some detail, giving the numerical algorithm, its limitations, and sometimes what to do in difficult cases.

The authors intended the programs to be only a guide for people doing serious numerical programming. Very often the routines have the crucial parameters determining their performance (e.g., the convergence accuracy or the maximum number of steps) hardcoded inside them (often in the form of a PARAMETER statement). Also, many constants are coded in single precision; the routines must therefore be scanned very carefully and then modified if you want to convert them to double precision. If you plan to use the programs exactly as they are (i.e., as "black boxes"), you must take those features into consideration.

Numerical Analyst

Numerical Analyst is a small library of compiled FORTRAN routines for Microsoft FORTRAN, although versions for other compilers are expected soon. It comes on one DSDD diskette. The library may be used with or without the math coprocessor, but of course it will run faster with the coprocessor. Version 2.0 of the library has the routines for the following tasks (numbers in brackets indicate how many routines are available in a given group): differential equations (1); mathematical functions such as Bessel functions, elliptic integrals, various polynomials (17); interpolation (3); linear equations (4); integration (2); zeroes of functions (3); some statistical functions such as gaussian distribution and error function, and routines for descriptive statistics and correlations (6); routines for vector and matrix operations including sorting (17); and several utility routines (10). Generally speaking, these routines are easy to use and are designed to give you reasonable control over execution. The new Version 3.0, due later this year, is to contain several new routines (eigenvalues and eigenvectors) and also user-directed error control.

GAUSS

GAUSS is a mathematical and statistical system with its own programming language and a large library of application programs covering the following fields: descriptive statistics and tables, linear models and regression, nonparametric statistics, simulation, nonlinear estimation (specific models like probit, logit, bivariate and trivariate normal integrals, etc.), optimization (linear and nonlinear), nonlinear equation solution (up to 90 simultaneous equations), and time series. There are also modules for graphics and text plots, for data and file handling, and for enhanced graphics (2D and 3D graphics with hidden-line removal). The system has the following requirements:

- Math coprocessor (8087, 80287, or 80387)
- at least 320KB RAM (at least 512KB RAM for enhanced graphics)
- at least 3MB of hard-disk space (assuming that you load all the application modules)

In my own experience, the programming language is very simple and natural; after less than an hour with the tutorial, I could use the system to solve systems of linear equations with the matrices imported from DOS files, write short programs, and manipulate them at will. Generally, GAUSS is very strong on linear problems (see the timings below). I did not have time to test many of its aspects before the press deadline, but further experiences will hopefully be reported in future issues of *ComputerNews*. GAUSS also turned out to be more accurate on linear problems than Numerical Analyst or Numerical Recipes routines.

The system gives you access to the source code of the application programs (written in the GAUSS programming language) such as the statistical ones. Thus it may appeal to people who want full flexibility and the ability to modify the programs to suit their needs. This is not the case with many statistical packages and numerical libraries, which usually come in a compiled form.

Timings

(All timings were done on a Zenith AT, 6MHZ clock and 80287 coprocessor.)

Matrix multiplication

	(17x17)	(33x33)
FORTRAN code	0.74 secs	5.39 secs
Numerical Analyst	0.96 secs	7.08 secs
GAUSS	0.46 secs	3.24 secs

Solution of a system of linear equations

	17 equations	33 equations
Numerical Recipes		
Gauss-Jordan	1.60 secs	9.69 secs
LU decomposition	0.92 secs	4.24 secs
Numerical Analyst	0.92 secs	4.55 secs
GAUSS	0.32 secs	1.45 secs

(Note: the accuracy of solution achieved by GAUSS was two or more orders of magnitude higher than for the other two products.)

continued...

Integration (1000 integrals, accuracy 1e-9)

Function	$\sin(5x) + 1$ $(0, 2\pi)$	$6x^5 + 5x^4 + 4x^3$ $(0, 1)$
Numerical Recipes		
Romberg method	29.5 secs	28.4 secs
Gauss method	12.0 secs	11.6 secs
Numerical Analyst		
Romberg method	4.7 secs	15.1 secs
GAUSS		
Gauss method	5.4 secs	7.1 secs
Simpson method	82.7 secs	1860.0 secs

(Integration results for GAUSS should be treated with caution. For instance, GAUSS treats all variables as matrices; this gives a large overhead on multiplications and powers of scalars.)

Roots of functions

(Finding a root of the Bessel function of first kind with 1.0e-9 accuracy. In all cases, the routine from Numerical Analyst was used to calculate the Bessel function.)

Numerical Recipes	
Bisection method	1.84 secs
Brent's method	0.54 secs
Numerical Analyst	
Bisection method	0.39 secs

Sorting (array of 1089 numbers)

Numerical Recipes	
Heapsort	1.1 secs
Quicksort	0.9 secs
Numerical Analys	
Interchange sort	50.0 secs
Address calculation sort	4.0 secs
GAUSS	1.7 secs

Pricing Information

Numerical Recipes	
The book	$ 55.95
FORTRAN diskette	$ 27.95
Numerical Analyst	US$ 200.00

(Quantity discounts are available. A site license is a possibility which would make the price much lower.)

GAUSS	
Single copy	US$ 350.00
Quantity discount 3-9	US$ 265.00
10+	US$ 225.00

You are encouraged to share with us your experiences with numerical calculations on micros. Let us know about your requirements, too; with sufficient demand, we may attempt to arrange a site license or perhaps a quantity purchase of some of the software products. That would make the products more accessible and less expensive for everyone.

Advising Survey

Reinhard Schuller
SCHULLER at UTORONTO

The Advising Office of the Information Centre conducted a survey of all incoming calls for the period November 23 through December 4. In total, 352 calls were recorded for the ten-day period. Callers were asked a series of questions related to the system and application they were using. We also wanted to know toward what type of use their computing was directed, i.e., research, administration, instruction, or anything else. This article highlights the results of the survey.

People from 74 different disciplines / departments called the Advising Office during the survey period. The following list indicates the most active departments and their percentage of all calls: Engineering 12%; Medicine 10%; Community Health 5%; UTCS commercial customers 4%; Computer Science 4%; and Arts & Science, Forestry, Management Studies, and Zoology each with 3%. All other groups comprised less than 3%.

*The user profile is shown in **Figure 1.** The relative percent of the four categories — faculty, staff, graduate, and undergraduate — remained consistent across both IBM PCs and VM/CMS. The numbers for the Macintosh are small (only 32 calls), so no trend should be interpreted.*

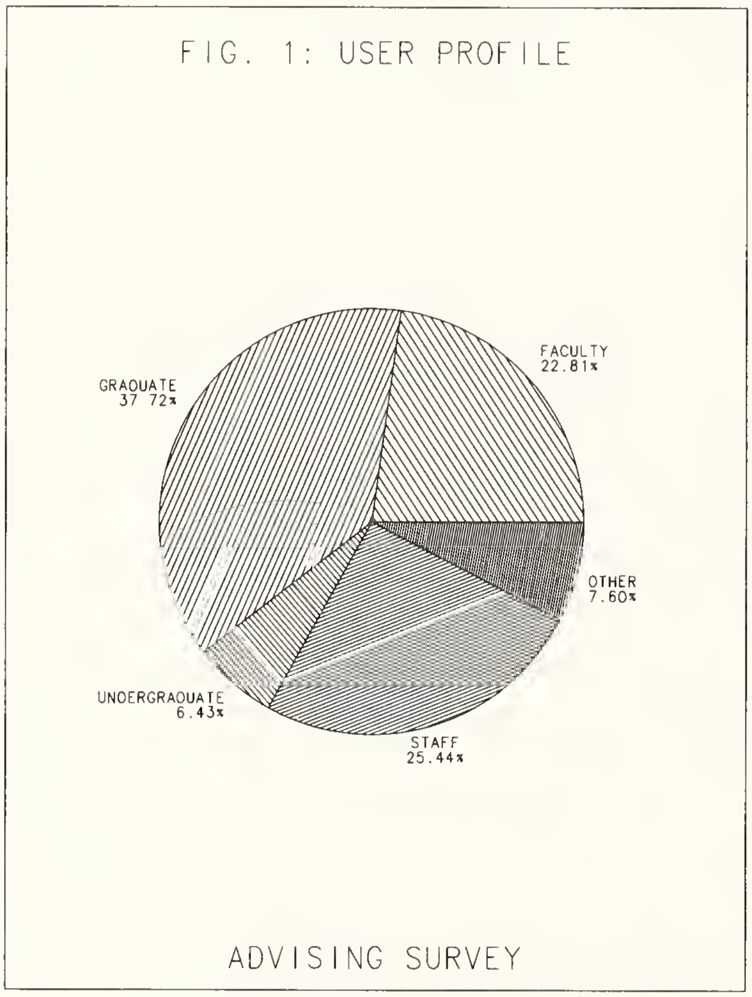


Figure 1

*The type of use that prompted the call is shown in **Figure 2.***

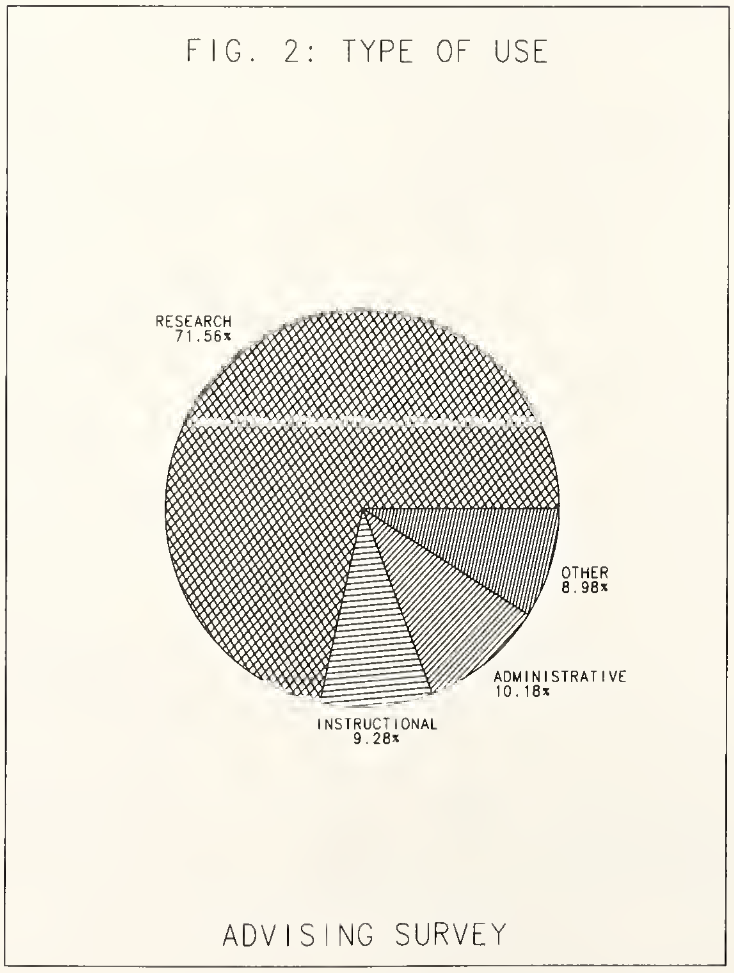


Figure 2

The system used is shown in ***Figure 3.*** *The category MICROXFR consists of the primary use of VM/CMS to transfer files to PCs. The category NETWORKS applies to nonspecific configurations of more than one machine. As you can see, CMS and the IBM PC were the frontrunners.*

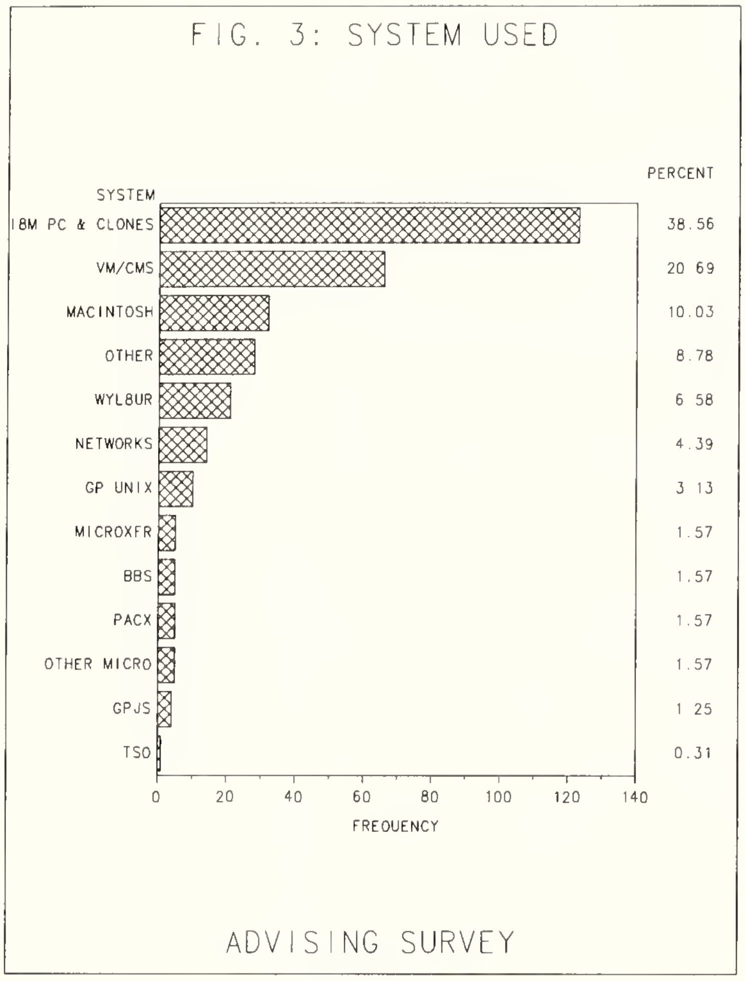


Figure 3

The application used with IBM PCs is given in ***Figure 4.*** *The primary applications were: word processing (WordPerfect was the predominant package), the communications program ProComm, and SAS.*

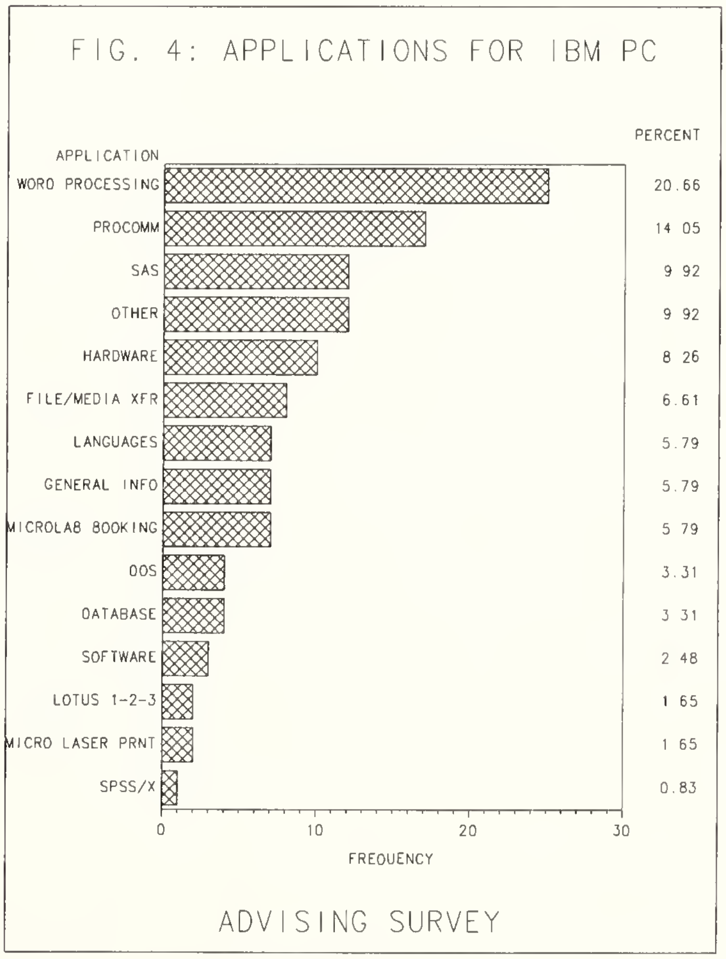


Figure 4

***Figure 5** lists the applications associated with VM/CMS. Here SAS is the primary application, followed by questions on CMS' own command language.*

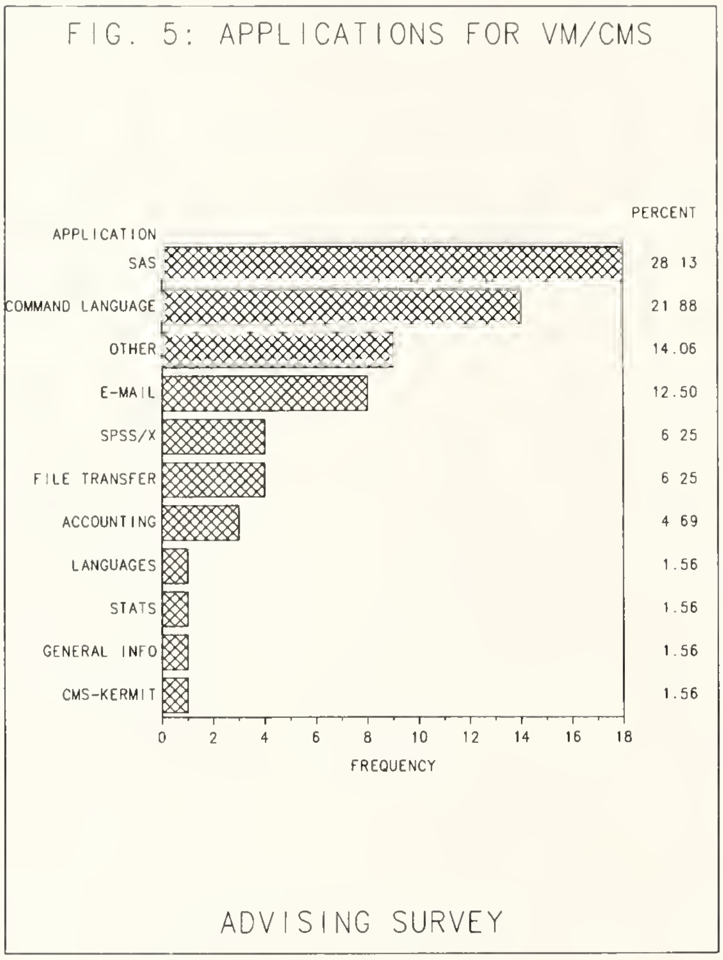


Figure 5

The Advising Office was able to answer 88% of all incoming calls and give the user a prompt and helpful answer. Those questions that the Advisors could not respond to were followed up by either the Micro Support Group, the Statistical and Numerical Applications Group, or the Text/Imaging Group. We would like to thank all of you who were generous with your time and helped us assess the needs of the user community. If you have any suggestions or comments, please feel free to call me at 978-6878.

Support for SCRIBE Is Now Class C

John Bradley
BRADLEY at UTORONTO

Effective immediately, SCRIBE on UTCS' CMS machine is becoming a Class C product. A Class C support level means that it remains available on CMS, but UTCS will guarantee neither its support nor its continued operation. There are two reasons for this change in status.

Firstly, the number of SCRIBE users has dwindled in recent years. Most people today do their text formatting on microcomputers, which are appropriate tools for almost all text applications. With so few SCRIBE users, UTCS can no longer justify the effort required to maintain the product at the Class A support level.

Secondly, SCRIBE on CMS is not properly supported by the vendor. UTCS has for several years paid SCRIBE's vendor a maintenance fee for the CMS version. In theory, this entitles us to new versions of the program as they are released and guarantees assistance from the vendor if we run into problems. In practice, however, things have been different. Although the vendor apparently continued to give good support for SCRIBE on non-CMS machines, no vendor support has been available for our version. Essentially, we believe that if SCRIBE should suddenly stop working, we might not be able to get it running again, and we can't count on the vendor for any meaningful help. Without effective support from the vendor, UTCS cannot keep SCRIBE at even the Class B level.

Since UTCS has a perpetual SCRIBE license, we can run our current version for as long as we wish. Hence, we have no intention of removing it from our CMS system. Furthermore, we have no reason to believe that it will stop working in the immediate future. However, we now advise any current SCRIBE users that they should look around for substitutes. If you are still using SCRIBE and would like some help finding alternatives, please give me a call at 978-3995.

Compiler Upgrades on VM/CMS

Herb Kugel
HERB at UTORONTO

Two University of Waterloo compilers are being upgraded on UTCS' UTORONTO machine. New versions of Waterloo C and WATFOR-77 have been installed as "NEW" for user testing. The University of Waterloo has modified its version-numbering conventions. Although the new version numbers for both compilers are much higher than those for the current production ones, be assured that both "NEW" processors follow directly from their "CURRENT" predecessors.

Waterloo C 3.0, replacing Version 1.3, has a vast array of new features, including a broad range of new development tools, a fullscreen panel library feature, and extensive online Helps. For details, issue the CMS command:

```
getme c new
```

Then type:

```
xedit watc30 technote *
```

to read the information file.

Version 2.5 of WATFOR-77 replaces Version 1.5 and is also a major upgrade with several important enhancements. For details, enter:

```
getme watfor77 new
```

and then:

```
xedit watfor77 technote *
```

Summer Course Schedule!

Irene Rosiecki
ROSIECKI at UTORONTO

Even though summer is still a few months away, we are already advertising our summer courses. With this much advance notice, hopefully you will be able to attend some of the planned sessions, and still find time to enjoy a vacation.

Registration is handled on a first-come, first-served basis. To find out about registration and course fees, please contact:

UTCS Education Office
4 Bancroft Avenue, Rm. 217
Phone: 978-4565

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dBASE101 - Introduction to dBASE III Plus
Date: August 29-September 2, 1988
Time: 1:00-4:00 p.m.

DOS101 - Introduction to PC-DOS
Date: June 6-10, 1988
Time: 2:00-4:00 p.m.

Date: August 22-26, 1988
Time: 2:00-4:00 p.m.

LOTUS101 - Introduction to Lotus 1-2-3
Date: June 13-17, 1988
Time: 9:00-12:00 noon

Date: August 29-September 2, 1988
Time: 9:00-12:00 noon

PGMAKE101 - Introduction PageMaker on the Macintosh
Date: June 20-24, 1988
Time: 2:00-4:00 p.m.

SASPC101 - Introduction to SAS
Date: June 13-17, 1988
Time: 3:00-5:00 p.m.

Date: August 15-19, 1988
Time: 2:00-4:00 p.m.

WORDIBM101 - Introduction to MicroSoft Word on the IBM PC
Date: August 22-26, 1988
Time: 9:00-12:00 noon

WORDMAC101 - Introduction to MicroSoft Word on the Macintosh
Date: June 13-17, 1988
Time: 9:00-1:00 p.m. (13)
9:00-12:00 noon (14-17)

Date: August 15-19, 1988
Time: 9:00-1:00 p.m. (15)
9:00-12:00 noon (16-19)

WRDPERF101 - Introduction to WordPerfect 4.2
Date: June 7, 9, 14, 16, 21
Time: 6:00-9:00 p.m.
EVENING COURSE

Date: July 4-8, 1988
Time: 9:00-12:00 noon

Accounting: University Fiscal Year-End

Marg Doherty
DOHERTY at UTORONTO

Users are reminded that the University Fiscal Year-End is April 30. This means that all blanket orders (Encumbrance Memos) raised for computing on a Departmental Appropriation Account (Ledger 1) will expire with the approach of that date.

The Comptroller's Office has given UTCS a billing close-off date of April 26 for charges to blanket orders. Therefore, the last day for accruing charges, to be applied to the blanket order, is April 21.

Charges for the remaining few days of April (April 22 through 30 at 5:00 p.m.) will be billed in May.

In order to achieve uninterrupted service over the year-end, account administrators are advised to do the following:

1. Supply the Accounting Services Office with a blanket order (Encumbrance Memo) for the new budget year by April 15. It should clearly show the BPOA holder's name, the BPOA number, the dollar amount, and the 1987/88 Encumbrance Memo number that it is replacing. In the case of a new account, where the BPOA and previous Encumbrance Memo numbers are not available, "NEW ACCOUNT" should be indicated.
2. If more than one CAN is to be associated with the BPOA, please contact Accounting Services at 978-8703.
3. Service Access Codes (SACs) should be checked to determine whether they are required in the new year. If they are, the expiry date should be checked and changed if necessary. Spending limits are another important consideration. If changes to total spending limit and usage to date require resetting, this information should also be communicated before the end of April.
4. To ensure that the final billing includes all charges relating to a job run at 5:00 p.m. on April 15, jobs in the hold queue must be printed or purged by the user.

The discussion thus far has dealt mainly with the year-end situation as it normally affects instructional and administrative users. Researchers are also affected by the expiration of departmental subsidy blanket orders. In this case, Departmental Computing Representatives are requested to supply Accounting Services with a copy of the new subsidy blanket order for each researcher by April 21.

We hope that this information is enough to help but not to confuse. Account administrators are encouraged to discuss any doubts or difficulties arising with accounts or access codes at anytime by calling the Accounting Services Office at 978-8703.

Mail should be addressed as follows:

UTCS Accounting Services
4 Bancroft Avenue, Room 100B
University of Toronto

You may prefer to pay us a visit on occasion. We are here from 9:00 a.m. to 5:00 p.m., Monday through Friday.

University of Toronto Computing Services

Hours of Service

Victoria Day Weekend
(May 21-23, 1988)

The hours of service for the above holiday weekend will be announced via system Broadcast and HOTNEWS messages closer to the holiday.

Change Committee

Changes to Academic MVS Machine Services

1. Syncsort 5.2E was replaced with VMSORT 2.0 (February 29).

Changes to Academic VM/CMS Machine Services

1. CMS SCRIBE was moved to Class C (February 25).

Changes to Other Systems and Services

1. Kermit 2.30 was made the production version (February 29).
2. The SUN UNIX O/S was upgraded to 3.5 (March 2).

ProComm Communications Program Seminar

May 25, 1988
9:00 - 11:00 a.m.

ProComm is a general purpose communications program currently available to all U of T faculty, staff, and students. It is the resident communications program in the IBM Education Facility.

A seminar has been scheduled to introduce ProComm and its various features: terminal emulation (a number of popular ones will be reviewed); the dialing directory; file transfer protocols, such as Kermit and XMODEM; configuration and modem parameter settings; and the DOS gateway, which allows you to execute DOS commands and other programs while you are still in ProComm.

A course fee is attached to this seminar. Copies of ProComm are made available at no charge to members of the University, but you must bring your own diskettes (two 5.25" or one 3.5").

To reserve a place in this seminar, please contact Irene Rosiecki at 978-4565.

Free NetNorth (Electronic Mail) Demonstration

May 25, 1988
11:00 a.m. - 12:30 noon

Anyone interested in sending documents to colleagues or friends reliably, quickly, and inexpensively will not want to miss this demonstration. We will introduce you to the NetNorth/BITNET/EARN communications network, which is accessible from the CMS system. This network connects more than a thousand universities and research institutes in Europe, Asia, and North America. Sending documents or files over the network is very easy to learn.

The demonstration will last just over an hour. Included will be how to send mail and files to another institution, and how to talk directly to someone on the network. ***Please note this is a demonstration only.***

Space is limited. If you would like to attend one of these sessions, please contact Irene Rosiecki at 978-4565 to reserve a place.

Personnel Changes

Susan Kovago has joined UTCS as Mail Clerk.

Edwin Shahnazarian has left UTCS to further his career.

Mansik Hovanessian has joined Operations as Computer Operator I.

Documents at UTCS

All vendor-produced documentation may be ordered through the UTCS Information Office, Room 206, Engineering Annex. UTCS documents and selected vendor documents are also stocked there for purchase. For more information on prices, call Dale Wright at 978-4990. Whenever feasible, documents are made available online, and users are encouraged to print their own copies. On the MVS and VM machines, special commands have been provided for this purpose.

To print online documents on:

IBM MVS
WYLBUR users type "do document?"
TSO users type "help document"
APL users type ")LOAD 1 UTCSGUIDE<RETURN>HELP"

IBM VM/CMS
Type "help document"

GP UNIX
Use *ipr* command

In these examples, the document to be printed is the UTCS Guide to Census Tapes (MANUAL/LISTING=CENSUS).
<RETURN> means RETURN or ENTER key.

TSO:	document census forms(yxle) <RETURN>
WYLBUR:	do document <RETURN> and respond to the prompts.
CMS:	document <RETURN> <RETURN> laser census listing (forms yxle <RETURN>
GP UNIX:	nohup ipr -8p -fyxle /usr/doc/utcs/census & <RETURN>

UTCS Documents in hardcopy:

New:

Previously announced:
- Academic's Guide to Microcomputer Systems
- Character Sets for Highspeed Printing
- UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction
- UTCS GUIDE TO PRODUCTS AND SERVICES: Basics
- UTCS GUIDE TO PRODUCTS AND SERVICES: Accounting
- UTCS Catalogue: Numerical Products
- UTCS Catalogue: Statistics Products
- UTCS Catalogue: Text Products
- UTCS Guide to Census Tapes
- UTCS Guide to Kermit
- UTCS Guide to Micro File Transfer Service
- UTCS Guide to Text Processing on GP UNIX

UTCS Documents online	**MVS MANUAL**	**CMS LISTING**	**GP UNIX**	**Forms Code**
New:				
Previously announced:				
UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction	INTRO	INTRO	/usr/doc/utcs/intro	*
UTCS GUIDE TO PRODUCTS AND SERVICES: Basics	BASICS	BASICS	/usr/doc/utcs/basics	*
UTCS Catalogue: Access, Part 1	ACCESS1	ACCESS1	/usr/doc/utcs/access1	*
UTCS Catalogue: Access, Part 2	ACCESS2		/usr/doc/utcs/access2	*
UTCS Catalogue: IBM MVS Utilities	MVSUTIL	MVSUTIL		*
Product-Function List	UTILLIST	UTILLIST		BXQD
UTCS Catalogue: Numerical Products	NUMCAT	NUMCAT		*
Product-Function List	NUMLIST	NUMLIST		BXQD
UTCS Catalogue: Statistics Products	STATCAT	STATCAT		*
Product-Function List	STATLIST	STATLIST		BXQD
UTCS Catalogue: Text Products	TEXTCAT	TEXTCAT	/usr/doc/utcs/textcat	*
UTCS Guide to BMDP	BMDP	BMDP		*
UTCS Guide to Census Tapes	CENSUS	CENSUS	/usr/doc/utcs/census	*
UTCS Guide to GP UNIX			/usr/doc/utcs/gpunix	*
UTCS Guide to GPJS	GPJSX	GPJSX	/usr/doc/utcs/gpjs	*
UTCS Guide to Highspeed Printing	PRINT	PRINT	/usr/doc/utcs/print	*

* *Recommended forms code for the 8700 is YXLE unless otherwise stated.*
† *Use the 87set command. Type "help 87set".*

Documents continued

UTCS Documents online	**MVS MANUAL**	**CMS LISTING**	**GP UNIX**	**Forms Code**
New:				
Previously announced:				
UTCS Guide to IBM MVS Online Storage	IBMDISK	IBMDISK		*
UTCS Guide to Kermit	KERMIT	KERMIT	/usr/doc/utcs/kermit	*
UTCS Guide to Micro File Transfer Service	MICROXFR	MICROXFR		*
UTCS Guide to Micro Laser Printing	MICRLASR	MICRLASR		*
UTCS Guide to SAS	SAS	SAS		*
UTCS Guide to SCRIBE (For printing instructions, see page 1 of document)	-	SCRIBE		*
UTCS Guide to Series/1 Terminal Use	SERIES	SERIES		*
3270 Emulation:				
Cybernex APL100 and Volker Craig VC404	CYBER	CYBER		*
DM1520	DM1520	DM1520		*
Hardcopy Terminal	HARDCOPY	HARDCOPY		*
IBM 3101	IBM3101	IBM3101		*
IBM PC Kermit	PCKERMIT	PCKERMIT		*
SOROC IQ	SOROC	SOROC		*
VT52	VT52	VT52		*
VT100	VT100	VT100		*
UTCS Guide to SPSS	SPSS	SPSS		*
UTCS Guide to SUBUTILS	SUBUTILS	SUBUTILS		*
UTCS Guide to Text Processing on GP UNIX			/usr/doc/utcs/text	YXOG
UTCS Guide to TFW.MAK in SCRIBE		TFWMAK		*
UTCS Guide to TSO	TSOGD			*
UTCS Guide to UTDSUTIL	UTDSUTIL	UTDSUTIL		*
UTCS Guide to VM/CMS	CMSGD	CMSGD		*
UTCS Guide to WYLBUR	WYLINTRO			*
UTCS Rate Schedule (Commercial)		RATESCOM		†
UTCS Rate Schedule (External)		RATESEXT		†
UTCS Rate Schedule (Internal)		RATESINT		†
UTCS WYLBUR Tutorial	WYLTUTOR			*
Other Documentation online				
Kermit				
Kermit Protocol Manual	KERMITPM	KERMITPM		YXOE
Kermit User Guide	KERMITUG	KERMITUG		YXOF
ProComm				
ProComm Reference Manual	PROCOMM	PROCOMM		YXOE
VM Tape Documents				
TapeMap User's Guide and Reference		TAPEMAP		*
VMTAPE Messages and Codes		VMTMSGS		YXOE
VMTAPE User's Guide		VMTUSER		YXOE
VMSECURE				
VMSECURE User's Guide		VMSECURE		YXOE
Waterloo SCRIPT				
Reference Manual	WSCRPTRF	WSCRPTRF		YXLC
User's Guide	WSCRPTUG	WSCRPTUG		YXLC
Using SCRIPT in MVS/TSO	WSCRPTSO	WSCRPTSO		YXLC
Waterloo SCRIPT and a PostScript Printer	WSCRPTPST	WSCRPTPS		YXLC
Formula Processor Summary	WSCRPTFP	WSCRPTFP		YXLC
GML User's Guide	GMLUG	GMLUG		YXLC
GML Reference Summary	GMLRFSUM	GMLRFSUM		YXLC
OBS WYLBUR				
Messages and Codes	WYLMSGS			YXLD
Qwik Files	WYLQWIK			YXLD
Reference Summary	WYLREFCD			YXLG
Reference Manual	WYLREFMN			YXLD
7.0 Release Guide	WYLREL70			YXLC
User Guide	WYLUSER			YXLD
Electronic Mail				
A User's Guide to Electronic MAIL		MAILBOOK		YXOC

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* *Recommended forms code for the 8700 is YXLE unless otherwise stated.*
† *Use the 87set command. Type "help 87set".*

Consulting and Enquiries

Applications Support & Advising Supervisor	Alex Nishri	BC214	978-7109
External Marketing Consultant	Ihor Prociuk	BC217	978-6875
Erindale College	Joe Lim	ER2035	828-5311
Information Office	Dale Wright	BC201	978-4990
Account & Access Code Enquiries (U of T)	Christine Gray	BC101B	978-8703
Account & Access Code Enquiries (External)	Sylvia May	BC101B	978-7148
IBM PC Maintenance	Kam Mark	BC103	978-5050
Tape Library (Academic Services)	Richard Foster	MP368	978-7319
Tape Library (Administrative Services)	Miranda Fong	MP368	978-6693
Terminal Service	Rosi Tseu	BC105	978-3787
UTCS Noncredit Short Courses	Irene Rosiecki	BC217	978-4565

Consulting & Advising Services:	978-HELP
CMS, TSO and GP UNIX userids:	ADVISOR
CMS Userid for mail problems:	POSTMSTR
System Status Enquiries (GP UNIX)	978-4318
System Status Enquiries (IBM)	978-7393
Interactive Services 300 (bps)	978-6200
Interactive Services 1200 (bps)	978-3959
Interactive Services 2400 (bps)	978-7239
Datapac	4320 0056
Telnet	0302043200056
Tymnet	<backspace>DPAC;302043200056

UTCS Directory

Director:	Dr. Warren Jackson	MP350	978-8948	WCJ at UTORONTO *
Associate Director:	Eugene Siciunas	MP350	978-5058	EUGENE at UTORONTO *
Managers:				
Communications &Technical Support	Norman Housley	BC121B	978-4967	NORMAN at UTORONTO *
Information Centre	Don Gibson	BC217	978-7331	DON at UTORONTO *
Internal Systems Support	Ron Vander Kraats	BC121A	978-4428	RVK at UTORONTO *
Operations Support	Dr. Bob Chambers	MP350	978-7092	
Systems Support	Bill Lauriston	MP331	978-3579	BILL at UTORONTO *

Committees on Computing

Committee on Administrative Computing	Chair	Janice Oliver	978-4322	
UTCS Board	Chair	Prof. D.M. Nowlan	978-4984	NOWLAN at UTORONTO *
Supercompter Users' Group at U of T	Chair	Prof. P.P. Kronberg	978-4971	

Legend

BC = Bancroft Building
ER = Erindale
MP = McLennan Physical Labs

* NetNorth/BITNET/EARN

UTCS Terminal and Advising Sites

Names and Locations

Central Advising Office (CAO), 978-HELP
Engineering Annex (EA, CDF), 11 King's College Road, Rooms 103, 107, 107B, 201, 203
Erindale College (Erin), 828-5339, Mississauga Road, Erindale Campus, Rooms 2037, 2039A-B-C, 2045
Robarts, Robarts Library, 130 St. George St., Room 1061A
Sidney Smith (Sidney), 100 St. George St., Rooms 1071, 2105
St.Michael's College, 121 St. Joseph St., Room 107
Trinity College, 6 Hoskins Ave., Room 024
Victoria University, 73 Queens Park Cres., Room 208

Sites		**Hours of Access**			**Restrictions***	**Advising**
	Mon-Thurs	**Fri**	**Sat**	**Sun**		
CAO	10:00-18:00	10:00-18:00	closed	closed	Research	978-HELP
CDF	24 hrs	24 hrs	24 hrs	24 hrs	Undergrads	No
EA	24 hrs	24 hrs	24 hrs	24 hrs	None	978-HELP for Research
Erin (2039) □	9:00-17:00	9:00-17:00	12:00-16:00	12:00-16:00	Research	Rm 2005
(2045)	24 hrs	24 hrs	24 hrs	24 hrs	Undergrads	Rm 2005
(235)†	8:00-22:00	8:00-17:00	closed	closed	None	Rm 2046
Robarts	8:30-24:00	8:30-24:00	9:00-22:00	13:00-22:00	None	978-HELP for Research
Sidney	7:00-24:00	7:00-24:00	7:00-24:00	7:00-24:00	None	978-HELP for Research
St.Michael's	24 hrs	24 hrs	24 hrs	24 hrs	None	Arranged by College
Trinity	8:00-22:00	8:00-22:00	8:00-22:00	8:00-22:00	None	Arranged by College
Victoria	8:30-23:00	8:30-23:00	closed	closed	None	Arranged by College

Legend
* Research includes graduates, faculty, staff.
□ Key access available.
† Access restricted to building hours.

Advising Hours

CAO	Monday through Friday, 10:00 - 18:00
Erin	Monday through Friday, 09:00 - 20:00

Sites	**PACX**	**Network Terminal Server**	**CMS Only**	**Printers Terminals**	**CDF/PC**
CDF	Y	N	N	Y	N
EA	N	Y	N	Y	N
Erin	Y	Y	N	Y	N
Robarts	Y	N	N	Y	Y
Sidney	N	Y	N	Y	Y
St.Michael's	Y	N	N	Y	Y
Trinity	N	N	Y	Y	Y
Victoria	Y	N	N	Y	Y

(Y=yes, N=no)

UTCS Services

UTCS Centrally Owned and Managed

Systems

IBM VM/CMS

- General Purpose Timesharing, access to NetNorth, BITNET, and EARN networks; access to CRAY X-MP
- 4381-R14 processor, 32 megabytes of memory
- CP operating system, VM/SP HPO R4.2
- CMS timesharing system, VM/SP Release 4
- RSCS spooling system, Release 3
- CRAY station Release 4

IBM MVS

- TSO, WYLBUR, APL, Batch
- runs as a preferred guest under VM
- MVS operating system
- Xerox 8700 Laser Printing

GP UNIX
Technical Assistance: 978-8853

- General Purpose Timesharing under SUN UNIX 3.2
- SUN 3/280, 8 megabytes of memory
- access to Linotronic typesetter
- offers a sophisticated and powerful environment for text processing
- offers a sophisticated programming environment suitable for commercial software development or testing
- full access to USENET, an electronic technical information exchange facility
- offers excellent electronic mail facilities and ability to send or receive mail from most computer networks worldwide, such as UUCPNET, ARPANET, NetNorth, BITNET, CSNET, CDNNET

Services

Communications & Technical Support
Primary Phones: 978-3787, 978-4967

- Communications Group provides communications systems, terminals, modems, data channels: consulting and installation.
- Field Service Group installs and maintains communications and computer systems, particularly IBM PCs and Micro Vaxes, on a contract basis or on a cost-per-call basis.
- provides consulting on computer systems technology and installs computer systems
- provides access between the IBM systems and machines using UNIX, VMS and other operating systems. Ethernet, Pronet, and IBM TRN technologies are used over various transmission media including optical fibre. More basic communications techniques are also used for moderate speed links.
- provides consulting on local area networking and installs LANS
- provides access to NetNorth (BITNET), the North American Universities Network; and USENET, the UNIX networking fraternity
- will provide a communications solution to department needs on a contractual basis

Information Centre
Primary Phone: 978-HELP

- Provides assistance in use of electronic messaging, including use of Local Area Networks (LANS); NetNorth/BITNET/EARN, the world Universities network; CDNNET, the Canadian X.400 network; ARPANET; CSNET; USENET; and other international connections.
- provides advising, consulting and documentation on:
  - command languages, including CMS, TSO, WYLBUR, JCL, and UNIX
  - high level languages, including FORTRAN, and PL/I
  - packages and libraries, including SAS, SPSS-X, BMDP, IMSL, and NAg
  - editors and formatters, including XEDIT, TSO, WYLBUR, ed, SCRIBE, nroff/troff
- provides general micro support
  - selection consulting for hardware and software
  - Micro Lab for evaluation of hardware and software
  - advice on University discounts
  - media conversion and data transfer
  - operates UTCS Microcomputer Bulletin Board System
  - offers Micro Laser Printing Service
  - offers 35mm slide production service using Polaroid Palette
  - administers Local Area Network of PCs for Education Facility
  - administers Macintosh Education Facility
- high quality typesetting
- installs and maintains application packages
- provides short courses and seminars on the more popular services and software packages

> The principal mandate of UTCS is to plan, implement, and operate facilites and "common-carrier" networks, and to plan and support divisional, departmental or project computer facilities as requested.

Facilities Managed by UTCS

Administrative Computing

- administrative IMS/VS, DB/DC, DB2, Batch, and TS0
- 4381-R14 processor, 32 megabytes of memory
- MVS operating system

Computer Disciplines Facility/UNIX

VAX-11/780, 4 megabytes of memory (cdfa)
- Computer Science interactive access
- UNIX (Berkeley UNIX 4.3bsd)

SUN 3/280, 8 megabytes of memory (cdfb)
- Computer Science interactive access
- SUN UNIX 3.5

VAX-11/750, 4 megabytes of memory (cdfc)
- Computer Science interactive access
- UNIX (Berkeley UNIX 4.3bsd)

Computer Disciplines Facility/PC

- 97 TI Professional Computers connected in a Local Area Network
- introductory Computer Science instruction
- MS-DOS with Turing environment

Erindale College Systems

VAX 8200, 8 megabytes of memory
- instructional access using VMS
- research access

VAX-11/750, 5 megabytes of memory
- instructional access using UNIX (Berkeley UNIX 4.3BSD)

Institutional Relations System

VAX-11/750, 8 megabytes of memory
- database services to the owner departments using VMS

EPAS Facility

- 4361-5 processor, 16 megabytes of memory
- general VM/CMS services to the owner departments

Ontario Centre for Large Scale Computation (OCLSC)

- Cray Research Inc. X-MP/22
- 2 processors, 2 megawords main memory
- solid state disk (SSD) with 16 megawords of storage
- COS 1.15 operating system
- VAX-11/750 + microVAX II providing VMS front-end services directly and to VMS and UNIX nodes
- VM front-end services provided by UTCS 4381-R03

UTCS Software List

SOFTWARE LIST for MAINFRAME COMPUTERS MVS, VM/CMS, UNIX

Each programming language or package available at UTCS has a support level. In general, Class A Products receive full support, Class B limited support (as time and resources allow), Class C no active support. For complete details of UTCS product support policy, see the UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction.

Package/Compiler	System	Support	Version
Communications			
Kermit	VM/CMS	A	---
	UNIX	B	4C(058)
FTS	VM/CMS	A	---
MAIL/MAILBOOK	VM/CMS	A	86.359
MICROLASER	VM/CMS	A	---
macget/macput	UNIX	C	---
netcopy, netexec, to (NetNorth Tools)	UNIX	B	---
xmodem	UNIX	C	---
ftp,rsh,rlogin,telnet,rep *(Access via TCP/IP to most of the networked machines on all three campuses)*	UNIX	B	---
rn/Pnews	UNIX	B	---
mail,mh,Mail	UNIX	-	---
rje	UNIX	B	---
Graphics			
PLOTBASIC (FORTRAN)	MVS	A	---
	VM/CMS	C	---
PLOTBASIC EXTENDED ROUTINES	MVS	A	---
SAS/GRAPH	MVS	A	5.16
	VM/CMS	A	5.16
SURFACE II	MVS	C	---
Languages			
APL (Sharp)	MVS	C	May 83
ALGOLW (Stanford)	MVS	C	n/a
ASSEMBLER(F)	MVS	C	2.1
	VM/CMS	C	---
A.A.E.C. PASCAL	MVS	C	2.0
Concurrent Euclid	VM/CMS	C	1.9
FORTRAN H EXT.	MVS	B	2.2.1
FORTUTILS	VM/CMS	A	2.2
LISP	MVS	C	---
MARKEXAM	MVS	C	---
PL/C	MVS	C	---
PL/I CHECKOUT COMPILER	MVS	B	1.3.0
	VM/CMS	B	1.3.0
PL/I OPT COMPILER	MVS	B	1.5.1
	VM/CMS	B	1.5.1
REXX	VM/CMS	A	---
SNOBOL 4	MVS	C	3.5
	VM/CMS	C	3.5
SPITBOL	MVS	C	---
Turing	VM/CMS	C	---
UTCS FORTRAN UTILITIES	MVS	B	---
VS COBOL	MVS	C	2.4
VS FORTRAN	MVS	A	1.4.1
	VM/CMS	A	1.4.1
VS Pascal	VM/CMS	C	2.2
WATBOL	MVS	C	V3L2
Waterloo C	VM/CMS	C	1.3
WATFIV	MVS	B	---
	VM/CMS	C	V2L0
WATFOR-77	VM/CMS	A	1.3
cc	UNIX	A	---
f77	UNIX	C	---
ratfor	UNIX	C	BSD std.
ttc	UNIX	C	---
pc	UNIX	C	BSD std.
yacc	UNIX	C	---
awk	UNIX	C	---
adb,dbx	UNIX	C	BSD std.
Numerical			
DYNAMO	MVS	B	4.07
EISPACK	MVS	C	4
FORMAC	MVS	C	---
FUNPACK	MVS	C	---
GPSS	MVS	A	Rel.1, Mod. Level 4
IMSL	MVS	A	9.2
	VM/CMS	A	9.2

Software List continued

Package/Compiler	System	Support	Version
LINPACK	MVS	C	---
	VM/CMS	C	---
MINOS	MVS	C	4.0
MINPACK	MVS	C	1
MPSX	MVS	C	Rel.1, Mod. Level 6
NAg	MVS	A	Mark 11
Statistical			
BMD	MVS	C	---
BMDP	MVS	A	Level 85, Level 87
	VM/CMS	A	Level 85, Level 87
GENSTAT	MVS	C	4.04B
Minitab	VM/CMS	B	5.1
NAg	MVS	A	Mark 11
NTSYS	MVS	C	Dec. 1982
SAS	MVS	A	5.16
	VM/CMS	A	5.16
SPSS	MVS	C	9.1
SPSS^x	MVS	A	2.2
	VM/CMS	A	2.2
TSP	MVS	C	3.5
Text Processing			
COGS (Concordance Generating System)	MVS	B	3.1
KWIC	MVS	C	---
OCP (Oxford Concordance Program)	MVS	C	1.4
SCRIBE	VM/CMS	A	4(1400)-1
Waterloo SCRIPT	MVS	C	85.1
	VM/CMS	B	86.1
XEDIT	VM/CMS	A	---
8700 Pseudotypesetting	VM/CMS	A	n/a
MICROLASER	VM/CMS	A	---
ed	UNIX	A	---
vi	UNIX	C	---
cmacs	UNIX	C	---
spell	UNIX	C	---
diction/explain	UNIX	C	---
eqn	UNIX	A	---
tbl	UNIX	A	---
pic	UNIX	C	---
troff	UNIX	A	---
nroff	UNIX	A	---
TeX	UNIX	C	---
Utilities			
DFSORT	MVS	A	6.0
DSMAP	MVS	A	---
FILEBOL	MVS	C	---
FORTUTILS	VM/CMS	A	2.2
GRIPE	MVS	A	---
IBM UTILITIES	MVS		---
IEBGENER	MVS	A	---
IEBCOPY	MVS	A	---
IEHMOVE	MVS	A	---
TAPEPRT	MVS	A	---
TAPEEXRAY	MVS	A	---
TCOPY	MVS	A	---
TPRINT	VM/CMS	C	---
UTCS FORTRAN UTILITIES	MVS	B	---
crypt	UNIX	A	BSD std.
compress	UNIX	C	BSD std.
csh	UNIX	B	BSD std.
diff	UNIX	A	BSD std.
grep	UNIX	A	BSD std.
ipr	UNIX	B	---
learn	UNIX	C	BSD std.
patch	UNIX	C	---
sed	UNIX	A	BSD std.
sort	UNIX	A	BSD std.
sh	UNIX	A	BSD std.
tar	UNIX	A	BSD std.
uniq	UNIX	A	BSD std.

Software List continued

SOFTWARE LIST for MICROCOMPUTERS

The following are microcomputer software packages for which UTCS can provide either support or some information. As with mainframe products, micro packages receive full support (Class A), limited support (Class B), or no active support (Class C). The specific criteria differ from those for mainframe classes and are outlined in the *Academic's Guide to Microcomputer Systems.*

Package/Compiler	Support	Version
Communications		
Kermit (MS-DOS)	A	2.27d
Kermit (APPLE II)	A	---
Kermit (CP/M)	C	---
Kermit (Macintosh)	B	0.8(35)
PC TALK3	C	---
PC PLOT III	A	---
ProComm	A	2.42 UT
MacTerminal	B	---
WYLBUR/PC	C	---
Database Managers		
4th Dimension	B	Int. 1.03
AskSam	C	2.2
Clipper	B	---
DATAEASE	B	---
dBASE II (CP/M)	B	---
dBASE II (MS-DOS)	C	--
dBASE III (MS-DOS)	A	1.1
dBASE III Plus	A	1.1
FoxBASE	C	2.14u
Notebook II	B	2.03
REFLEX	B	---
ViewFinder III	B	---
ZyINDEX	B	---
Desktop Publishing		
PageMaker (Macintosh)	B	2.0a
PageMaker (IBM PC)	B	1.0a
Ventura (IBM PC)	B	1.1
XPress (Macintosh)	C	1.0
Graphics		
DR HALO	C	---
Illustrator	B	1.0
Image Studio	B	1.0
Lotus 1-2-3	B	---
Microsoft CHART (Macintosh)	C	---
MacDraw	C	---
MacPaint	B	---
WATCOM GKS	B	---
35mm Express	B	---
Freelance Plus	B	2.0
Languages		
BASIC	A	---
Microsoft FORTRAN	C	---
TURBO Pascal	B	---
WATFOR-77	A	---
Operating Systems, Utilities		
APPLE Turnover (Macintosh)	A	---
CP/M	B	---
FASTBACK	B	---
Finder (Macintosh)	A	5.5
Hypercard (Macintosh)	A	1.01
PC-DOS	A	3.2
Sidekick	B	---
SuperKey	C	---
System (Macintosh)	A	4.1
TURBO Lightning	C	---
XenoDisk	A	1.41
Spreadsheet		
APPLEWORKS	C	---
HAL	B	---
Lotus 1-2-3	B	2.01
Microsoft Excel (PC)	C	---
Multiplan (Macintosh)	C	---

Software List continued

Package/Compiler	Support	Version
Sound		
SoundWave (Macintosh)	B	1.0
Statistical		
Minitab	C	---
PowerStat	C	1.04
SAS/PC	A	6.02
SPSS/PC +	A	---
STATPRO	C	2.0c
Statview (Macintosh)	C	1.0
Word Processing		
Gutenberg Senior	C	---
FinalWord II	B	2.0
MacWrite	C	---
Manuscript	C	---
Microsoft Word (Macintosh)	A	3.01
Microsoft Word (MS-DOS)	A	4.0
Nota Bene	B	2.0
T^3	C	---
Volkswriter Scientific	C	---
WordPerfect	A	4.1; 4.2
WordStar	B	---

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